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December 8, 2017

Environmental Protection Agency  
Attention Docket No. EPA-HQ-OAR-2010-0505  
Attention Docket No. EPA-HQ-OAR-2017-0346  
1200 Pennsylvania Ave. NW  
Washington D.C. 20406

**Submitted via US Mail, e-mail, and the  
Federal eRulemaking Portal**

**Subject:** **Docket ID No. EPA-HQ-OAR-2010-0505;** Comments on Oil and Natural Gas Sector: Emission Standards for New and Modified Sources: Stay of Certain Requirements (Federal Register, Vol. 82, No. 215, November 8, 2017)

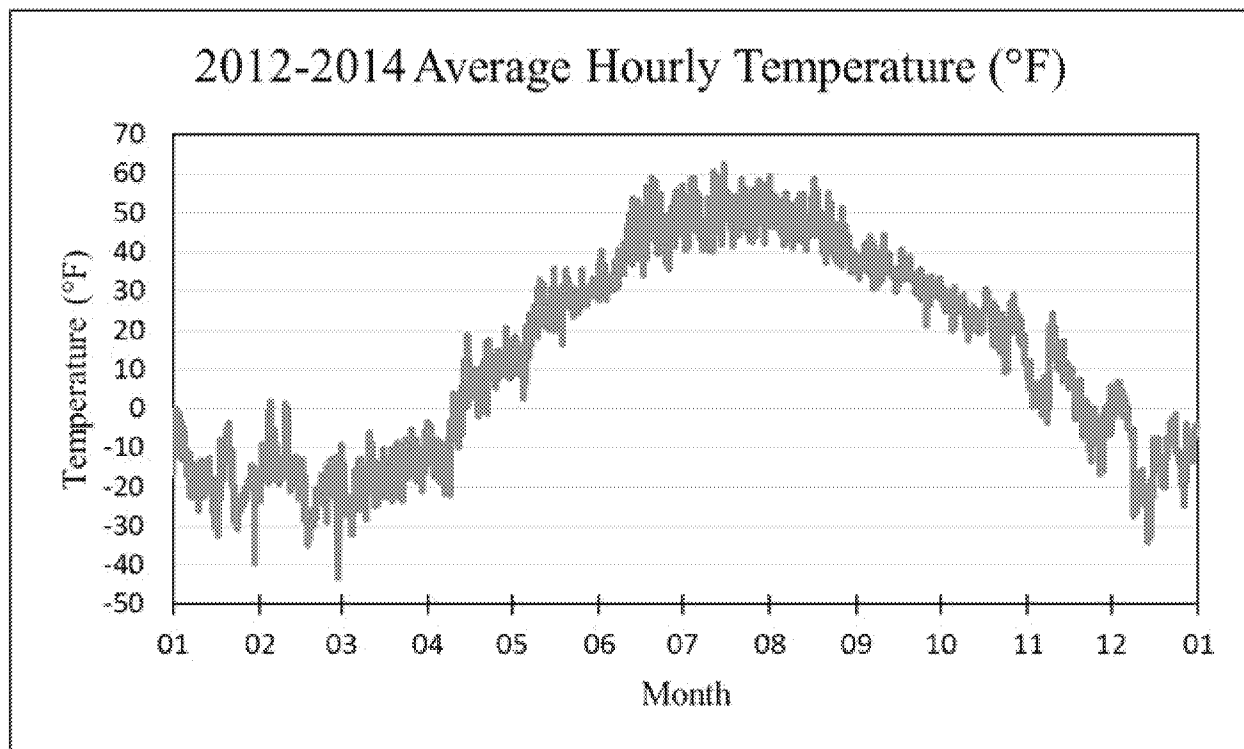
**Docket ID No. EPA-HQ-OAR-2017-0346;** Comments on Oil and Natural Gas Sector: Emission Standards for New and Modified Sources: Three Month Stay of Certain Requirements (Federal Register, Vol. 82, No. 215, November 8, 2017)

Dear Sir or Madam:

ConocoPhillips Alaska, Inc. (CPAI) is pleased to submit these comments on the above referenced proposed stay of certain requirements of 40 CFR 60, Subpart OOOOa. CPAI produces oil from the Kuparuk and Alpine oil fields and has equity interest in the Prudhoe Bay oil field, all of which are in the Arctic on the Alaska North Slope. We are the largest oil producer in Alaska, and consequently have a significant interest in the proposed 2-year and 3-month stays.

CPAI supports the comments submitted by the American Petroleum Institute (API) on this matter. The purpose for this separate letter is to focus on an issue specific to the arctic conditions that affect North Slope oil field operations. The EPA has acknowledged in prior rulemaking processes that Leak Detection and Repair (LDAR) requirements should not be applied to the North Slope because the balance of feasibility, benefit, and cost is different under arctic conditions. The OOOOa rule does not have an Alaskan North Slope exemption to any portion of the LDAR requirements, even though there are technological limitations outside of an operator's control that make an exemption warranted.

As previously stated in CPAI's original comment letter (submitted to the EPA on December 4, 2015) the technology required—Optical Gas Imaging (OGI) camera and Method 21 detectors—do not reliably detect methane leaks under the prevailing conditions on the North Slope (*i.e.*, sustained temperatures below 0°F). From Figure 1, temperatures below -4°F are a common occurrence on the North Slope, rendering wintertime LDAR activities technically infeasible since not all enclosures are heated, and most above-ground piping is exposed.



*Figure 1: 2012-2014 Average Hourly Temperature (°F), Nuiqsut, AK*

According to FLIR Systems, Inc., the OGI cameras' operating temperature range is from -4°F to 122°F. This manufacturer does not offer any gas imaging cameras designed to operate in temperatures below -4°F. Other leak detection technologies (Method 21 detectors and Photo Ionization Detectors) have the same temperature constraints as the OGI cameras as detailed in manufacturers' specifications sheets in Appendix A. In addition to the specifications, it is CPAI's experience in working with OGIs at extreme cold temperatures that the batteries lose power quickly, and the LCD screens and view finders freeze, rendering visual indications of leaks impossible.

The long periods of cold weather combined with the limitations of the required equipment poses severe and immediate compliance implications to the "initial survey" requirements within OOOOa:

*40 CFR 60.5397a(f)(1): You must conduct an initial monitoring survey within 60 days of the startup of production as defined in [OOOOa] for each collection of fugitive emissions components at a new well site or by June 3, 2017 whichever is later. For a modified collection of fugitive emissions components at a well site the initial monitoring survey must be conducted within 60 days of the first day of production for each collection of fugitive emission components after the modification or by June 3, 2017, whichever is later.*

*40 CFR 60.5397a(f)(2): You must conduct an initial monitoring survey within 60 days of the startup of a new compressor station for each new collection of fugitive emissions components at a new compressor station or by June 3, 2017 whichever is later. For a modified collection of fugitive emissions components at a compressor station the initial monitoring survey must be conducted within 60 days of the modification or by June 3, 2017, whichever is later.*

If a well site or a compressor station is started or modified during the months when average temperatures typically are lower than -4°F, (nearly 5 consecutive months, as depicted in Figure 1), Alaskan North Slope operators would be subject to a regulatory requirement to use monitoring equipment outside the temperature range specified by the equipment manufacturer. The requirements of the LDAR rule are therefore of great concern to CPAI for the 2017/2018 winter season.

Because the typical winter ambient temperature is lower than the bottom of the operating range of the required equipment, it would be unreasonable to require operators to conduct monitoring surveys with that equipment on a 60-day deadline. Given the rule as written, the temperature constraints of the required technology, climactic conditions on the Alaska North Slope, and our experience with such equipment not working in cold temperatures, a stay is necessary. A stay will allow time to address the arctic-specific considerations before North Slope operators are put in an untenable compliance position through no fault of their own. Ultimately, CPAI supports an Alaskan North Slope exemption to the LDAR requirements of OOOOa, consistent with prior rule makings as discussed in our December 4, 2015 comment letter.

Thank you for this opportunity to comment and please do not hesitate to call me at (907) 265-6937 if you have any questions or need more information to support our comments.

Respectfully,

A handwritten signature in black ink, appearing to read 'Laura K. Perry', is written over a horizontal line.

Laura K. Perry  
Coordinator – Air Quality  
907-265-6937

Enclosures

CC: Peter Tsirigotis, EPA, OAQPS  
Karen Marsh, EPA, OAQPS  
David Cozzie EPA, OAQPS

# **Appendix A**

Example Manufacturers' Specification Sheets



# FLIR GF300/GF320

## Infrared Camera for Methane and VOC Detection

The FLIR GF300/GF320 is a revolutionary infrared camera capable of detecting Methane and Volatile Organic Compound (VOC) fugitive emissions from the production, transportation, and use of oil and natural gas. This camera can scan large areas and visualize potential gas leaks in real-time, so you can check thousands of components over the course of one survey. Designed with the user in mind, the GF300/GF320 is lightweight, offers both a viewfinder and LCD monitor, and has direct access to controls. Embedded GPS data helps in identifying the precise location of faults and leaks, for faster repairs.

### Visualize Gas Emissions in Real-time

The FLIR GF300/GF320 is unbeatable at detecting gas emissions, with a High Sensitivity Mode that lets you visualize even the smallest leaks in real-time. Use this visual verification to pinpoint the exact source of the emissions and begin repairs immediately. In addition, the GF320 is capable of measuring temperatures up to 350 °C with  $\pm 1$  °C accuracy, allowing you to note temperature differentials and improve gas plume detection.

### Increase Worker Safety

Surveys performed with GF300/GF320 cameras are nine-times faster than those performed with gas sniffers. They're also safer: optical gas imaging does not require close contact with components in order to detect gas. This reduces the risk of exposure to invisible and potentially harmful chemicals. In addition, the camera can scan areas of interest that are difficult to reach using conventional methods. The ergonomic design, with a bright LCD and articulated viewfinder, takes the strain out of a full day of surveys.

### Stop Leaks, Save Money, Help the Environment

By fixing gas leaks, you can save your company thousands in lost gas and lost profits, while at the same time improving regulatory compliance and protecting the environment. The FLIR GF300/GF320 complies with all current regulations for Optical Gas Imaging (OGI). See our website for a full listing.

#### The GF300/GF320 detects the following gases:

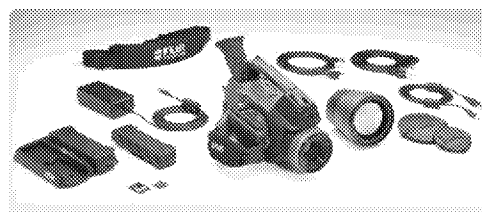
Methanol	Methane	Benzene	Ethane	Propylene
Ethanol	Pentane	1-Pentene	Isoprene	Butane
Ethylbenzene	MEK	Toluene	Propane	Octane
Heptane	MIBK	Xylene	Ethylene	Hexane



## Specifications

Model GF300 / GF320	
Detector Type	FLIR Indium Antimonide (InSb)
Spectral Range	3.2 – 3.4 $\mu\text{m}$
Resolution	320 x 240 pixels
Detector Pitch	30 $\mu\text{m}$
NETD/Thermal Sensitivity	<15 mK @ +30°C (+86°F)
Sensor Cooling	Stirling Microcooler (FLIR MC-3)
Electronics / Imaging	
Image Modes	IR Image, visual image, high sensitivity mode (HSM)
Frame Rate (Full Window)	60 Hz
Dynamic Range	14-bit
Video Recording / Streaming	Real-time non-radiometric recording: MPEG4/H.264 (up to 60 min./clip) to memory card Real-time non-radiometric streaming: RTP/MPEG4
Visual Video	MPEG4 (25 min./clip) to memory card
Visual Image	3.2 MP from integrated visible camera
GPS	Location data stored with every image
Camera Control	Remote camera control via USB
Measurement	
Standard Temperature Range	–20°C to +350°C (–4°F to +662°F)
Accuracy*	$\pm 1^\circ\text{C}$ ( $\pm 1.8^\circ\text{F}$ ) for temperature range (0°C, to +100°C, +32°F to +212°F) or $\pm 2\%$ of reading for temperature range (>+100°C, >+212°F)
Optics	
Camera f/number	f/1.5
Available Fixed Lenses	14.5" (38 mm), 24" (23 mm)
Focus	Automatic (one touch) or manual (electric or on the lens)
Image Presentation	
On-Camera Display	Built-in widescreen, 4.3 in. LCD, 800 x 480 pixels
Automatic Gain Control	Continuous/manual, linear, histogram
Image Analysis*	10 spotmeters, 5 boxes with max./min./average, profile, delta temperatures, emissivity & measurement corrections
Color palettes	Iron, Gray, Rainbow, Arctic, Lava, Rainbow HC
Zoom	1-8x continuous, digital zoom
General	
Operating Temperature Range	–20°C to +50°C (–4°F to +122°F)
Storage Temperature Range	–30°C to +60°C (–22°F to +140°F)
Encapsulation	IP 54 (IEC 60529)
Bump / Vibration	25 g (IEC 60068-2-27) / 2 g (IEC 60068-2-6)
Power	AC adapter 90-260 VAC, 50/60 Hz or 12 V from a vehicle
Battery System	Rechargeable Li-ion battery
Weight w/ Battery & Lens	1.94 kg (4.27 lbs)
Size (L x W x H) w/ Lens	305 x 165 x 161 mm
Mounting	Standard, 1/4"-20

\* GF320 model only



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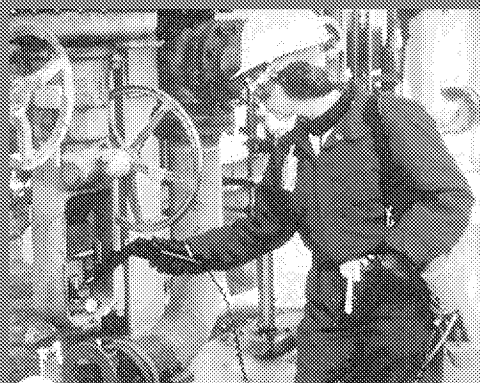
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Equipment described herein may require US Government authorization for export purposes. Diversion contrary to US law is prohibited. Imagery for illustration purposes only. Specifications are subject to change without notice. ©2015 FLIR Systems, Inc. All rights reserved. (Updated 11/03/15)



Product Overview  
TVA1000B  
Toxic Vapor Analyzer



The Only Portable Intrinsically  
Safe Dual PID/FID Analyzer

Analyze • Detect • Measure • Control™

**Thermo**  
ELECTRON CORPORATION

ED\_004016E\_00001924-00007

## Portable Toxic Vapor Analyzer

The TVA1000B is the only over-the-shoulder portable vapor analyzer that offers both PID (Photo Ionization Detection) and FID (Flame Ionization Detection) in a single, easy-to-use instrument. The ability to utilize both technologies in this field proven instrument provides benefits in reduced weight and a single user interface. The user can easily monitor and log inorganic and organic vapors simultaneously.

### FID Detection

Users can measure a wide variety of organic vapors over an impressive dynamic range (0-50,000 ppm), monitoring some compounds that the PID will not detect. The flame ionization detector operates by breaking hydrocarbon bonds and is not limited by the ionization potential of the molecule.

### Simultaneous FID/PID Detection

No other instrument offers both Photo Ionization and Flame Ionization Detection operating simultaneously in a single portable vapor analyzer. Dual detection eliminates the time, expense and trouble of purchasing and maintaining two separate analyzers.

With PID detection, the user has not only the ability to monitor for organic compounds, but also can detect many inorganic compounds. Some compounds detected by PID and not FID are ammonia, carbon disulfide, carbon tetrachloride, formaldehyde, and hydrogen sulfide. The PID also has the advan-

tage of not requiring fuel or air to operate. In anaerobic environments, the TVA1000B PID can be used.

### Applications

#### *Fugitive Emissions Monitoring*

The unique dual detector FID/PID design can handle a wide range of compound vapors present at processing plants. The TVA1000B will permit monitoring at lower ppm levels.

#### *Emergency Response*

For reliable measurements of hazardous spills or emissions, the TVA1000B responds quickly in an emergency. The ability to quickly detect the presence of "hot spots" is key to locating the source of the hazard.

#### *Hazardous Waste Site Evaluation*

The TVA1000B allows quick and easy identification of the hazard location and quantifies the level of contamination.

#### *Underground Storage Tanks*

The TVA1000B is a primary tool for determining if a UST is leaking and the extent of the contamination.

#### *Industrial Hygiene*

The TVA1000B can help you maximize the effectiveness of your plant ventilation system, and identifies trouble spots. Use it to survey ambient vapor levels in specific breathing zones or in general plant environments, and log for further follow-up action.

#### *Natural Gas Leak Detection*

The TVA1000B enables quick and easy detection of natural gas leaks.

## Key Features

- ♦ Simultaneous FID/PID or Single FID detector(s)
- ♦ Portable and lightweight
- ♦ Multiple response factors and curves
- ♦ Multi-point calibration
- ♦ On-board datalogging
- ♦ 8 hour battery life

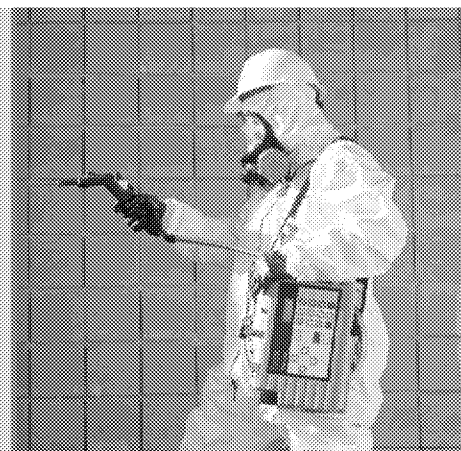
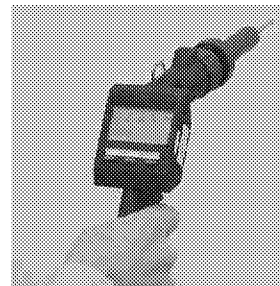
## Probe Options

### ♦ *Standard Probe*

Display measurement values on a 4-character LCD, with measurement units displayed on %, ppm, or ppb. Additionally, a bar graph indicator provides an indication of concentration level. Function keys allow selection of analyzer functions.

### ♦ *Enhanced Probe*

Originally designed for Fugitive Emissions monitoring, the enhanced probe has a larger display area than the basic probe. This provides a display of up to 6 lines x 20 characters, plus a double height concentration value. It displays all the same information as the standard probe and has menu-driven access to many of the analyzer functions, allowing them to be easily initiated and/or changed at the probe.





**TVA1000B**  
Data Manager Accessory:  
Route Management Probe

*Powerful field capabilities*

The TVA1000B Data Manager allows users to modify or create route data in the field, eliminating the need for manual recording of data. This helps you comply with the electronic data storage requirements within most consent decrees. The new probe has a highly visible 360 degree LED with a pulsed rate linked to concentration.

The DataManager provides access to all of the features previously available only through the sidepack. Users can also easily search and navigate between tags in a route by simply entering the desired tag identifier.

*Flexibility and control*

The DataManager allows control of how data is viewed and accessed in the field. This allows the user to customize the view to best meet the monitoring needs at your facility, as each route may have different fields and screen displays. Fields may be designated as non-editable to enhance data integrity and database security.

An optional comment field allows the user to make electronic notes about each tag monitored. An alpha-numeric keypad makes data entry a snap.

**Key Features for the**  
**DataManager**

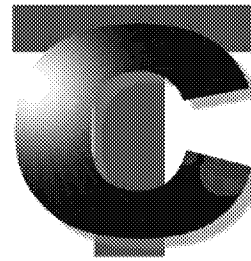
- Custom field labels for more clearly identified route information
- Definable screen layouts optimize user efficiency
- Pick lists lead to consistent data entry and minimize chance of data entry errors
- One button selections to access most commonly used functions
- New sample probe provides 360 degree visual indicator of concentration level
- Cable management system eliminates snagging sample line and electronic cable
- Existing TVA1000 units may be upgraded
- Enhanced filtering system removes dirt and water more efficiently.



Analyzer bag protects TVA1000 and may be used with standard shoulder strap or optional framed backpack.

**ThermoConnect Software**

ThermoConnect enables users of the TVA1000B to transfer, display, analyze, and configure data from the instrument using a computer. ThermoConnect is windows based and facilitates the importing of data into other Windows based applications making it easier to retrieve logged data.



Added capability to maximize the TVA DataManager's features

ThermoConnect has been updated with a powerful new utility to create new route database template files. This utility allows you to easily build your own route database and design the screen appearance through a four-step process. Also, any existing route files in the old file format are still recognized by the TVA and may be upgraded to the new format.



Complete DataManager System

The **TVA1000B** is a  
benchmark for experience  
and reliability in  
Fugitive Emissions Monitoring

## TVA1000B Technical Specifications

Safety certifications	FM (Class 1, Div. 1, Groups A,B,C&D Hazardous Location, Temp. Class T4) CENELEC (Div. 1, Zones I and II Group IIC, Hazardous Location, Temp. Class T4)*
Datalogging	Onboard
Readout	Bar graph & 4- digit LCD
Dynamic Range	0.5-2,000 ppm (PID) isobutylene; 0.5-50,000 ppm (FID) methane
Linear Range	0.5-500 ppm (PID) isobutylene; 0.5-10,000 ppm (FID) methane
Response Time	3.5 seconds
Minimum Detectable Limit	100 ppb benzene (PID); 300 ppb hexane (FID)
Alarms	Low, high, STEL
Sample Flow Rate	1,000 cc/min nominal
Power	Rechargeable NiCd Battery
Logging Capacity	800-18,000 points mode specific
Temperature Range	0-40°C (32°F - 104°F)
Fuel	None required (PID); 99.995% hydrogen (FID)
Portable Operation Time	8 hours (with reference operating conditions)
Approximate Mass	5.8 kg (13 pounds)
Nominal Dimensions	13.5 x 10.3 x 3.2 inches (343 x 262 x 81 mm)
Analog Output	0-2V dc
Repeatability	+/- 1% (PID); +/- 2% (FID)
Autoranging	Yes
Diagnostics	Yes

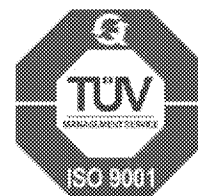
### Other Available Options:

Carrying Case	P/N CR012XL
Charcoal Filter	P/N 510095-1
FID Calibration Kit	P/N CR009UY
PID/FID Calibration Kit	P/N CR012UH

\* Enhanced probe and DataManager not CENELEC certified as of publication date

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## MultiRAE

**Manufacturer:** RAE Systems[Order / Quote](#)

[Description](#) [Specifications](#) [Applications](#) [Downloads](#)

**Size**

- 7.6" H x 3.8" W x 2.6" D (193 x 96.5 x 66 mm)

**Weight**

- 31 oz. (880 g)

**Sensors**

- Over 30 intelligent interchangeable field-replaceable sensors including PID for VOCs, electrochemical sensors for toxic gases and oxygen, combustible LEL and NDIR sensors, and CO<sub>2</sub> NDIR sensor

**PID sensors**

VOC 10.6 eV (HR)

**Range**

0 to 5,000 ppm

**Resolution**

0.1 ppm

VOC 9.8 eV1

0 to 1,000 ppm

0.1 ppm

**Combustible sensors**

Catalytic LEL

0 to 100% LEL

1% LEL

NDIR (0-100% LEL Methane)

0 to 100% LEL

1% LEL

NDIR (0-100% Vol. Methane)

0 to 100% Vol.

0.1% Vol.

**Carbon Dioxide sensor**Carbon Dioxide (CO<sub>2</sub>) NDIR

0 to 50,000 ppm

100 ppm

**Electrochemical sensors**Ammonia (NH<sub>3</sub>)

0 to 100 ppm

1 ppm

Carbon Monoxide (CO)

0 to 500 ppm

1 ppm

Carbon Monoxide (CO), Ext.

0 to 2,000 ppm

10 ppm

Range

Carbon Monoxide (CO), H<sub>2</sub>-comp. 0 to 2,000 ppm

10 ppm

Carbon Monoxide (CO) and

0 to 500 ppm

1 ppm

Hydrogen Sulfide (H<sub>2</sub>S)

0 to 200 ppm

0.1 ppm

Combo

0 to 50 ppm

0.1 ppm

Chlorine (Cl <sub>2</sub> )		
Chlorine Dioxide (ClO <sub>2</sub> )	0 to 1 ppm	0.03 ppm
Ethylene Oxide (EtO-A)	0 to 100 ppm	0.5 ppm
Ethylene Oxide (EtO-B)	0 to 10 ppm	0.1 ppm
Ethylene Oxide (EtO-C), Ext. Range	0 to 500 ppm	10 ppm
Formaldehyde (HCHO)	0 to 10 ppm	0.01 ppm
Hydrogen (H <sub>2</sub> )	0 to 1,000 ppm	2 ppm
Hydrogen Chloride (HCl)	0 to 15 ppm	1 ppm
Hydrogen Cyanide (HCN)	0 to 50 ppm	0.5 ppm
Hydrogen Fluoride (HF)	0 to 10 ppm	0.1 ppm
Hydrogen Sulfide (H <sub>2</sub> S)	0 to 100 ppm	0.1 ppm
Hydrogen Sulfide (H <sub>2</sub> S), Ext. Range	0 to 1,000 ppm	1 ppm
Methyl Mercaptan (CH <sub>3</sub> -SH)	0 to 10 ppm	0.1 ppm
Nitric Oxide (NO)	0 to 250 ppm	0.5 ppm
Nitrogen Dioxide (NO <sub>2</sub> )	0 to 20 ppm	0.1 ppm
Oxygen (O <sub>2</sub> )	0 to 30% Vol.	0.1% Vol.
Phosgene (COCl <sub>2</sub> )	0 to 1 ppm	0.02 ppm
Phosphine (PH <sub>3</sub> )	0 to 20 ppm	0.1 ppm
Phosphine (PH <sub>3</sub> ), Ext. Range	0 to 1,000 ppm	1 ppm
Sulfur Dioxide (SO <sub>2</sub> )	0 to 20 ppm	0.1 ppm

#### Battery Options

- Rechargeable Li-ion (~12-hr. runtime, < 6-hr. recharge time)
- Extended duration Li-ion (~18-hr. runtime, < 9-hr. recharge time)
- Alkaline adapter with 4 x AA batteries (~6-hr. runtime)

#### Display

- Monochrome graphical LCD display (128 x 160) with backlighting
- Automatic screen "flip" feature

#### Display Readout

- Real-time reading of gas concentrations; PID measurement gas and correction factor; battery status; datalogging on/off; wireless on/off and reception quality
- STEL, TWA, peak, and minimum values

#### Keypad Buttons

- 3 operation and programming keys (Mode, Y/+, and N/-)

#### Sampling

- Built-in pump
- Average flow rate: 250 cc/min.
- Auto shutoff in low-flow conditions

#### Sensor Specifications - VOC's

- Range (ppm) 0 to 999.9 / Resolution (ppm) 0.1 / Response Time (T90) <3 sec
- Range (ppm) 1000 - 5,000 / Resolution 1 / Response Time (T90) <3 sec

#### Calibration

- Automatic with AutoRAE 2 Test and Calibration System<sup>1</sup> or manual

#### Alarms

- Wireless remote alarm notification

- Multi-tone audible (95 dB @ 30 cm), vibration, visible (flashing bright red LEDs), and on-screen indication of alarm conditions
- Man Down Alarm with pre-alarm and real-time remote wireless notification

**Datalogging**

- Continuous datalogging (6 months for 5 sensors at 1-minute intervals, 24/7)
- User-configurable datalogging intervals (from 1 to 3,600 seconds)

**Communication and Data Download**

- Data download and instrument set-up and upgrades on PC via charging and PC comm. cradle, travel charger, or AutoRAE 2 Automated Test and Calibration System1
- Wireless data and alarm status transmission via built-in RF modem (optional)

**Wireless Network**

- RAE Systems Dedicated Wireless Network

**Wireless Frequency**

- ISM license-free bands

**Wireless Range**

- (Typical) 656 feet (200 meters)

**Operating Temperature**

- -4° to 122° F (-20° to 50° C)

**Humidity**

- 0% to 95% relative humidity (non-condensing)

**Dust and Water Resistance**

- IP-65 rating

**Hazardous Location Approvals**

- CSA: Class I, Division 1, Groups A, B, C and D, T4
- ATEX: 0575 II 2G Ex ia d IIC T4 Gb
- IECEx: Ex ia d IIC T4 Gb

**CE Compliance (European Conformity)**

- EMC directive: 2004/108/EC
- R&TTE directive: 1999/5/EC
- ATEX directive: 94/9/EC

**EMI/RFI**

- No effect when exposed to 0.43mW/cm<sup>2</sup> RF interference from a 5-watt transmitter at 12"

**Performance Tests**

- MIL-STD-810F compliant. LEL CSA C22.2 No. 152; ISA-12.13.01

**Languages**

- Arabic, Chinese, Czech, Danish, Dutch, English, French, German, Indonesian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, Spanish, and Swedish

**Warranty**

- 2 years on non-consumable components and catalytic LEL, CO, H<sub>2</sub>S, and O<sub>2</sub> sensors
- 1 year on all other sensors, pump, battery, and other consumable parts

Additional equipment and/or software licenses may be required to enable remote wireless monitoring and alarm transmission

The CO + H<sub>2</sub>S combo sensor is required for a 6-gas configuration

Specifications are subject to change

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